PRESIDENTIAL ADDRESS.

Before offering you a brief report upon the progress of the Society's affairs during the year 1904, I may remind you that the Society enters to-day upon the thirty-first year of its career of steadily growing useful work.

Twelve (nominally thirteen) Ordinary Members and two Associate Members were elected during the year—a very satisfactory increase, compared with the numbers for the preceding two years; especially as the payment of entrance fees again became operative at the beginning of the Session.

Since the last Annual Meeting the Society has lost by death two of the veterans among the Ordinary Members—Mr. P. N. Trebeck in his 82nd, and the Hon. P. G. King, M.L.C., in his 86th year.

Prosper Nicholas Trebeck was born in Calcutta in 1823; and after some time spent in England, came out to Sydney in the year 1841. During his subsequent long residence in Australia, he was actively identified with the great sheep and cattle industries, either as a squatter or in business. His experiences as a pastoralist in Victoria at the time of the gold discoveries, when the energies of the employer of labour were paralysed by the desertion of his men, were of a very eventful character. In the year 1863 Mr. Trebeck came to reside in Sydney, and in 1875 he took an active part in raising a large sum of money to further the pioneering efforts of the late Mr. T. S. Mort to start an export trade in frozen meat. As a public-spirited citizen he took a keen interest in various other important organisations in this State which have for their object the development of our major primary industries. For some years he was President of the Animals' Protection Society, in which he took a very enthusiastic interest. Mr. Trebeck became a Member of the Linnean Society of New South Wales in the year 1883. In 1887 he was elected a Member of the Council, of which he was still a Member at the time of his death. From 1898 until his retirement from active

business life in August, 1901, he performed very efficiently the duties of Hon. Treasurer, in succession to the Hon. Dr. Norton. During this period Sir William Macleay's scheme for the endowment of Bacteriological research was successfully put into working order; and as such matters as the appointment of a Bacteriologist and the equipment and maintenance of a bacteriological laboratory have a financial aspect, the enlargement of the Society's sphere of operations at this time was not without additional responsibility for the Hon. Treasurer.

Mr. Trebeck was a most valuable Member of the Council, and it is becoming that the Society's obligations to him should be officially recognised. His experience and knowledge of finance were freely placed at the Society's disposal at all times. And now that the Society has such large pecuniary interests at stake, the inclusion in the Council of a fair proportion of Members of the type of Mr. Trebeck is a very necessary and important factor in the successful management of the Society's financial affairs.

Mr. Trebeck's attendance at the Meetings was exemplary; and his interest in Science, as well as in the welfare of the Society, was maintained to the last. He was present at the Council Meeting in December, in his customary cheerful mood, and without any unusual premonition of the heart-failure which a few days later (on December 26th, 1904), and at short notice, ended his long and honourable career.

Few, if any, Australian families have had so lengthy and so honourable a connection with the country as that of which Philip Gidley King was a member. His grandfather, Captain P. G. King, served under Captain Phillip, founded the Colony of Norfolk Island, and subsequently filled the important position of Third Governor of New South Wales under very difficult conditions but in a manner which must continue to demand the cordial approval of posterity.

His father, Rear-Admiral Philip Parker King, was born at Norfolk Island in 1793, and entered the Navy in 1807. He is well known as the officer entrusted with the important work of

completing Captain Flinders' survey of the coast of New Holland (1818-22); and at a later date as the Commander of an Expedition appointed to carry on important survey work on the coasts of South America (1826-30). Captain King's Narratives of these Voyages are still valuable works of reference. He was a zoologist of no mean order, and is deserving of great credit for the hearty encouragement he always afforded to those interested in collecting, and to Allan Cunningham in particular. On his retirement from the navy, Captain King returned to Australia; and undertook the management of the Australian Agricultural Company's affairs, in succession to Sir Edward Parry. He died in Sydney in February, 1856.

Philip Gidley King was born at Parramatta in October, 1817. In the year 1822, with two of his brothers, he accompanied his father to England. After some years at school he entered the Royal Navy; and in December, 1831, as a midshipman, left England in H.M.S. Beagle upon that memorable circumnavigating voyage with which Darwin's name and fame are so indelibly associated. The Beagle arrived in Port Jackson on January 12th, 1836, and upon her departure at the end of the month, "Mr. King remained with his father at Sydney."* In his 'Journal,' Darwin mentions, in connection with his return journey from Bathurst, that: "On the road to Sydney I spent a very pleasant evening with Captain King at Dunheved" (p.443). After his retirement from the navy, Philip Gidley King soon became actively engaged in the great pastoral industry in connection with stations in Victoria, in the Murrumbidgee District, and afterwards in the Hunter River District. In 1842, he entered the service of the Australian Agricultural Company; and still later became the first General Superintendent of the Peel River Land and Mineral Company, a connection which was maintained for more than half a century and up till the time of his death.

* Narrative of the Surveying Voyages of H.M.SS. Adventure and Beagle. Vol.ii. Proceedings of the Second Expedition. By Captain R. Fitzroy (p.20).

Mr. King was an Original Member of the Society, and joined in 1874. He resigned in 1877; but again renewed his Membership in 1880. For six years (1881-86) he was a Member of the Council, and used his best endeavours to forward the interests of the Society. He was present at the dedication of this Hall in October, 1885, and his portrait appears in the group photographed upon the occasion of the unveiling of the bust of Sir William Macleay in June, 1889. But during recent years his increasing age deprived him of the pleasure of continuing an active interest in the Society's work.

Mr. King's knowledge of the history of settlement in Australia, his inheritance of family documents and relics of the greatest interest, and his own long connection with public and other affairs made him a very interesting personage. But to his other qualifications there was superadded an interest in Science, which was kindled by his intercourse with Darwin, and stimulated by the development of that illustrious naturalist's scientific work. On one occasion Mr. King thus referred to his reminiscences of Darwin :—

"As a young man I had the honour of serving in the Royal Navy under Admiral Fitzroy . . . . and whilst so serving I was the cabin mate of the great man who has recently passed away, and of whose memory I cherish the very highest regard. When I had the honour of knowing Mr. Darwin we were both young men, though he was my senior by several years. . . . With Mr. Darwin I have ranged amongst the orange groves of Bahia and Botafogo; I have explored the coral rocks of the Abrolhos and the South Pacific; I have been tossed and tumbled about on the fearful tempestuous seas off Cape Horn—have trod the glaciers in the Straits of Magellan—have ridden amongst the wild Patagonians, and fished in his company with the lowest order of created man, the wretched inhabitants of Terra del Fuego. In company with Mr. Darwin I have shot the deer, the cavy, and the ostrich on the plains of the Pampas, witnessing the wonderful skill of the Gauchos in the use of the bolas and

the lasso. Every remembrance of my intercourse with that wonderful man burns like a lighted lamp."*

Mr. King died at Sydney on 5th August, 1904.

The last published List of Members was issued in 1900. This shows the state of the Roll at the end of that year, and comprises the names of 120 Ordinary Members. During the interval of four years, forty-three additional members were elected. After deducting the names of those who have been lost to the Society by death or resignation from the total of 163, there remain upon the Roll the names of 31 Members whose subscriptions are in arrears for two years and upwards, and who have made no response to the usual reminders issued from time to time, thus leaving a balance of about 110 Members who are effective or not beyond hope in this respect.

Of the 110 Ordinary Members, 16 reside in the country, 10 in other States (Queensland, Victoria, Tasmania and New Zealand), four in Europe, and three in Honolulu, leaving a balance of about 77 resident in the metropolitan area. By way of comparison, it is interesting to know that the Hon. Treasurer's book shows that when the Society was founded, subscriptions were received from 102 Original Members during the interval of less than three months between the preliminary Meeting of November 5th, 1874, and the First General Meeting of January 11th, 1875. Before the close of the Session, 55 additional Members were enrolled, giving a total of 157 effective Members for the first year of the Society's scientific career.

Thirty years ago the number of men of science in New South Wales was very limited. The University was only partially developed on the scientific side, and not at all on the medical side. Our Museums, and the State Departments whose operations need to be conducted mainly by scientific men, were similarly more or less undeveloped. Yet in looking over the earliest Lists of the Members of this Society, one cannot fail to notice the names of a very considerable number of men of influence and

* Journ. Proc. Royal Soc. N. S. Wales, xvii. 1883, p.216.

standing in the community in those days, not particularly identified with science, but who joined the Society in recognition of its claims for support on the broad and general grounds of the encouragement of science as an aid to the advancement of knowledge. This fact is a tribute to the personal influence exercised by Sir William Macleay, and to the recognition of his capacity and foresight; but it is also a tribute to the public spirit which animated no inconsiderable section of the educated members of the community at that period.

Since that time Australia has developed considerably, population has increased, scientific institutions of various kinds have become more numerous and more effective, and men of science have increased in numbers. There has been no falling off in the scientific vitality of the Society, but, on the contrary, a satisfactory growth and development in this direction. Nevertheless the fact remains, that the List of Members has not proportionally increased as it might have been expected to do. And a falling off is most noticeable in that particular section of the Members which was numerically so strong at the beginning, namely, those who, though not actively engaged in scientific work, were ready to afford sympathetic support to a local participator in the general warfare against ignorance; and ignorance, it is to be remembered, is the ultimate drag upon the progress of the human race.

Still, the Society's experiences in the respect mentioned seem not to be altogether peculiar. Comparisons of last year's Lists with those of previous years will show that every one of the senior Scientific Societies of Australia can point to one or more earlier periods of its history when its membership was larger than it is at the present time.

The Society's property has been improved by connection with the low-level sewerage scheme, as contemplated in the Address of last year; and also by new or renewed fencing to the extent of half our boundary line, in consequence of the sale and occupation of the adjoining allotment of land which has been vacant since it ceased to be portion of Sir William Macleay's garden. The total cost of these improvements, including fittings, has been £44 15s. 10d.

It is to be regretted that the Hon. Treasurer has again to report a debit balance—on this occasion amounting to £63 2s. 6d. This is due to a combination of causes, chief among which are pressure upon our publishing resources, special expenditure on sewerage connections and fencing, but particularly to the loss of £50 per annum income, due to the re-investment of the sum of £5,000 upon mortgage, at a lower rate than the Society had previously received. The Council has had this matter under consideration, and being keenly alive to its importance, will, doubtless, adopt some plan to overcome this serious contingency.

Should the strain upon our publishing resources continue, the Council may, perhaps, find it worth while to follow the example of the Linnean Society of London, and initiate a "Donations-in-aid-of-publication" Fund.* Usually when the Society accepts a paper it bears the entire cost of publication. But there have been some exceptional cases, even leaving Sir William Macleay out of consideration. On two occasions an author has voluntarily defrayed the entire cost of one plate; one author has voluntarily provided process blocks, free of cost, for the illustration of a series of papers, altogether amounting to about seventeen plates; and still another has spontaneously contributed one-half the cost of three plates. Obviously if Members who are in a position to do so will continue to afford help in this direction, it will certainly materially assist in relieving the stress.

The attendance at the Meetings during the year has been quite up to the average. Thirty-three papers were read, and these provided an ample range of subjects for consideration and discussion. The concluding Part of the Proceedings for 1903, and Parts 1-3 of the Proceedings for 1904 were published and distributed during the year. Part 4 will be issued in about ten days. The Volume for 1904 comprises 871 + xxii. pages and 26 plates.

A new issue of the Rules and List of Members is in preparation, and will be sent out with Part i. of the Proceedings for 1905.

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* See Proceedings 115th Session (1902-3), p.79: 116th Session (1903-4), p.68.

The additions to the library for the year amounted to a total of 1,272 (including 157 Vols.) received by gift or exchange from 202 societies and 17 individuals.

At the last Annual Meeting I communicated to the Members a recommendation from the Council to the effect that the suspension of the payment of the entrance fee by new Members should not be continued, but that the amount of the entrance fee should be reduced from £2 2s. to £1 1s. for Ordinary Members, and given up altogether for Associate Members. At a Special General Meeting held on 27th April, 1904, the recommendation of the Council was unanimously confirmed, and Rule vi., as then amended,—

> vi. The Entrance Fee for Ordinary Members shall be one guinea, and the Annual Subscription one guinea; and for Associate Members the Annual Subscription shall be one guinea, without Entrance Fee—

became operative after confirmation at a Special General Meeting held on 25th May.

The Rules at present in force antedate the period during which the Society has had investigators engaged in research work officially connected therewith.

During the settlement of the details of the scheme for the endowment of the Fellowships, the Council determined that it was advisable, as a mere formal matter, without any retrospective significance whatever, to recommend the addition of a new Rule enacting that Members officially engaged in research work under the Society's auspices shall not be eligible for election into the Council. At a Special General Meeting of Members held on November 30th, a recommendation upon the subject by the Council was offered for the consideration of the Members and unanimously adopted. The new Rule, which reads—

> Rule xi. *bis.*—It shall not be competent for an Ordinary Member of the Society to hold office on the Council, and as Macleay Bacteriologist or Linnean Macleay Fellow simultaneously—

will become operative forthwith as the result of confirmation by the Special General Meeting held this evening.

During the past year the Macleay Bacteriologist has concluded his research upon the bacterium responsible for the production of the important vegetable gum, arabin, by investigating the nutrition of the micro-organism. He found that the gum was formed in the plant from the wandering sugars, levulose and maltose, and that it could not have a cellulosic origin (the present botanical theory) because the saccharine products of celluloses are not only incapable of being a source of gum, but they actually prevent its formation. Arabin, the essential constituent of Gum Acacia, is readily soluble in water, while metarabin, the fundamental substance of Cherry-tree Gum, is insoluble. The gums obtained from certain kinds of trees are very uniform in character, being one or other of these or else a remarkably constant mixture. The reason of this was found to be that the tree has the power of profoundly altering the physiological activity of the gum-forming microbe, causing it to produce the soluble or the insoluble variety. The research also showed the possibility of the organism being used in the examination of tannins, some of which assist, while others hinder, the formation of slime upon artificial media.

In continuation of the subject of the general production of vegetable gums by microbes, Dr. Greig Smith investigated the gum-flux of *Macrozamia spiralis* and found that it was caused by a new organism.

The Sugar-Cane sometimes exhibits, when cut longitudinally, brilliantly coloured red vascular strings, and microscopical observation shows that the colour is due to the large vessels being filled with a red slime or gum. Many bacteria may produce gum, but the colour is imparted to it by a particular microscopic mould which, when in the cane, can only produce the colour when growing in gum. The most suitable gum appeared to be. a white galactan, the product of *Bac. pseudarabinus*. A race of the same micro-organism producing a yellow slime was isolated from the Quince.

Of considerable interest is the constancy or variation of the slime-products of bacteria, which are recognised chiefly by the

appearance of the colonies and growths upon nutritive media. The slime, which is the matrix of the zooglœa, is remarkably constant, but variations in the solubility affecting the appearance of the cultures and the diagnosis of the bacteria have been found. The arabin and metarabin bacterium is one example. Another was given in a bacterium which produced an insoluble galactan when freshly isolated from plant tissue and a soluble modification after cultivation.

In addition to these researches, the Society's Bacteriologist found a possible explanation for the loss of colour of red wines in the presence of acetic bacteria in affected samples.

Three students received full courses of laboratory instruction during the year.

The year 1904 has been an exceedingly important one in one respect—that of getting the Linnean Macleay Fellowships Scheme into working order.

At the concluding Meeting of the Session of 1903 an announcement was made to the Society to the effect that Sir William Macleay's executors had paid over to the Society on 24th October, 1903, the sum of £33,250, representing a bequest of £35,000 to the Society, after the deduction of 5% as probate duty, for the foundation and endowment of Research Fellowships. At the same time it was mentioned that the capital had been invested at 4%, and that in consequence of the deduction for probate duty and the fall in the rate of interest obtainable at the present time as compared with that to be had upon a similar class of securities at the time the Will was made, the annual income available would certainly be less than Sir William contemplated; and that consequently some slight modification of his plans would be necessary.

The Society's choice of investment for the now considerable sum of trust moneys which it holds for general or special purposes is limited by the terms of Sir William's will relating to the same to Government securities or to loans upon mortgage of real estate in New South Wales or upon deposit in approved Banks in New South Wales. It is advantageous, from the Hon.

Treasurer's point of view, that our investments should be as few in number and for as large amounts as circumstances will permit. After considering such offers of investments in the way of loans upon mortgage as were available, the Council finally decided to invest the entire sum of £33,250 in Government Inscribed Stock, yielding 4 per cent. per annum. It may also be mentioned that for some years past the Society's investments have yielded no higher return than this.

Apart from the question of a diminished income, it became apparent, at an early stage of the Council's consideration of the terms of the bequest for the endowment of Fellowships, that these offered some moot points which it might be unwise to attempt to settle without legal advice. After much deliberation, the Council decided to seek the direction of the Equity Court upon the matters in question; and on August 26th the Society's petition for advice came on for hearing before Mr. Justice A. H. Simpson. Following precedent, it is desirable for the guidance of those who come after us that a record of these legal matters should appear in our Proceedings in the official terms while they are, as nearly as possible, current events. After a preliminary statement of matters relating to the bequest and to cognate matters, the Society's petition proceeded

Your petitioners therefore humbly pray : —

1. —That the opinion advice or direction of Your Honour may be given to your Petitioners upon the following questions that is to say : —

(*a*) While the income from the said Fund is less than £1600 per annum will your Petitioners be justified in appointing four Fellows at a less salary than £400 per annum for each Fellow or will your Petitioners be justified in appointing a smaller number of Fellows than four ?

(*b*) Will the possessor of a Degree in Science of Engineering who is not also a Bachelor or Doctor of Science be eligible for any of the said Fellowships ?

(*c*) Will a Graduate in Science of the other Universities referred to in the foregoing by-law who has been admitted

ad eundem gradum in the said University of Sydney be eligible for any of the said Fellowships ?

(*d*) Must the Candidates for the said Fellowships reside in this State and must they continue to reside within the State while they hold such Fellowships ?

(*e*) Is it compulsory upon your Petitioners to publish the results of the work and investigation of the said Fellows with the proceedings of the said Society in detail or may your Petitioners publish the said results in abstract or partly in abstract and arrange for the publication thereof *in extenso* or partly in abstract and partly *in extenso* elsewhere as suggested in paragraph 11 hereof.

(*f*) If it is compulsory upon your petitioners to publish these results *in extenso* must your petitioners publish in each year the results of work and investigation contributed in that year ?

(*g*) If it is compulsory upon the said Society to publish the said results in detail with the proceedings of the said Society will your petitioners be justified in using portion of the income from unawarded Fellowships towards the expense of publishing the said results ?

2.—That your Petitioners may have such further or other relief as the nature of the case may require.

In the Supreme Court of New South Wales in Equity. } No. 1374/'04.

In the Matter of the trusts of the will of Sir William Macleay deceased *and in the matter* of the Trusts affecting a fund of thirty five thousand pounds bequeathed by the said Will

and in the matter of the Trustee Act 1898.

Friday the twenty sixth day of August one thousand nine hundred and four.

Upon the petition of the Linnean Society of New South Wales for the opinion advice or direction of the Honorable Archibald

Henry Simpson Esquire Chief Judge in Equity preferred on the fifth day of August instant and coming on to be heard before His Honor this day *whereupon and upon hearing read* the said petition *and upon hearing* what was alleged by Mr. Langer Owen of Counsel for the said Petitioners *His Honor is of opinion that*,

(*a*) The Council of the said Linnean Society of New South Wales will be justified in appointing three Fellows only with a salary of four hundred pounds per annum until the income from the fund in the said petition mentioned is sufficient to pay to four Fellows the full salary of four hundred pounds per annum.

(*b*) The possessor of a degree in science of Engineering in the University of Sydney who is not also a Bachelor or Doctor of Science will not be eligible for any of the Fellowships in the said petition mentioned.

(*c*) A graduate in Science of the other Universities referred to in the by-laws in the said petition mentioned who has been admitted *ad eundem gradum* in the University of Sydney in the said petition mentioned will not be eligible for any of the said Fellowships.

(*d*) The Candidates for the said Fellowships must bona fide reside within the State of New South Wales.

(*e*) The Council of the said Society should publish the results of the work and investigations of the said Fellows with the proceedings of the said Society with such fulness as the said Council in their discretion think fit having regard to the income of the said Society available for that purpose but it is not necessary that such results should be published in the year during which they are communicated to the said Society.

(*f*) The income from unawarded Fellowships should be accumulated until the said fund is sufficient to produce an income of one thousand six hundred pounds per annum.

And His Honor doth order that it be referred to the Master in Equity to tax and certify the costs of the said petitioners of and incidental to this petition as between solicitor and client. And

that the said costs when so taxed and certified be paid out of the income of the said fund. And all parties are to be at liberty to apply as they may be advised.

At an early stage, too, the Council entered into communication with the Senate of the University, with the object of securing its co-operation in giving effect to the Fellowship scheme. The question of the scientific environment of the Fellows is a most important one. It is clear from the terms of the bequest that Sir William contemplated the possibility of Fellows being able to engage in research work while keeping directly in touch with the University.

In response to the Council's appeal, the Senate courteously approved of the admission of Linnean Macleay Fellows to the University laboratories upon the footing and terms of Research Students. The Senate was also good enough to authorise the Professorial Board to draw up a series of regulations to be observed by Research Students; and after due consideration these were adopted by the Senate.

Another necessary preliminary has been dealt with by the Council, whose deliberations upon the matter were considerably lightened by the aid rendered by an advisory Sub-Committee—namely, the preparation and adoption of a set of Regulations for the guidance of Candidates for Fellowships as well as of Fellows.

As soon as the various preliminary matters, to which I have now adverted, were settled, the Council found itself in a position to offer three Fellowships without further delay. The necessary announcements were accordingly made at the Monthly Meeting of the Society in October last, and afterwards by advertisement in the daily papers; the object being that the question of appointment might be settled by the end of the year, and the way prepared for the successful Candidate or Candidates, if any, to enter formally upon active work at the beginning of the April quarter of 1905.

In response to the Council's offer, five applications (of which one was informal) were received. After due consideration of these, in conjunction with an advisory Sub-Committee, the

Council decided upon this occasion to make one appointment only. I have very much pleasure in taking the earliest opportunity of publicly announcing to the Society the name of the successful applicant and the first Linnean Macleay Fellow—that of Mr. Harold Ingemann Jensen, B.Sc.; and of giving you some particulars of his qualifications for the position.

Mr. Jensen is a native of Aarhuus, Jutland, Denmark. He was seven years of age when his family came to Australia, and settled at Caboolture in Queensland. He was educated at the State School, Caboolture, under Mr. P. Z. McGurk, and from that school won a scholarship to the Brisbane Grammar School, where the remainder of his school education was gained under Mr. R. H. Roe. After passing the Sydney University Senior Examination he was appointed Meteorological Assistant at the Kosciusko Observatory, and spent the winter of 1898 at the summit of the mountain. In 1899 he commenced the Science Course at the Sydney University, and distinguished himself at the first year examinations. He was unable to continue his University studies for the following two years, but resumed them in 1902. At the end of that year he obtained first-class honours in Biology, Chemistry and Geology, and won the Caird Scholarship for Chemistry and the Deas-Thomson Scholarship for Geology. In his third year course in 1903 he graduated with first-class honours in the subject specially selected for his degree—Geology including Palæontology, and also gained second-class honours in the additional subjects of Chemistry and Mineralogy. In 1904 he was appointed Junior Demonstrator in Chemistry and Geology, in which capacity he was acting at the time of his election to a Macleay Fellowship.

In spite of the arduous nature of his University studies, Mr. Jensen found time for a considerable amount of scientific research. In June, 1902, he contributed a paper on the "Possible Relation between Sunspot Minima and other Volcanic Eruptions" to the Royal Society of New South Wales.* His opinions aroused

* Journ. Proc. Roy. Soc. N. S. Wales, xxxvi. 42.

considerable interest among European scientists; and by a curious coincidence views almost identical with Mr. Jensen's were communicated to the Royal Society of London by Sir Norman Lockyer at the same time as that when Mr. Jensen's paper was read in New South Wales, the two observers having arrived at similar conclusions after working quite independently of one another. In 1903 Mr. Jensen contributed to the Linnean Society of New South Wales a paper on "The Geology of the Glasshouse Mountains and District, Queensland," an original paper of much interest and value.* In June, 1904, Mr. Jensen read before the Royal Society of New South Wales a second paper entitled "Possible Relation between Sunspots and Volcanic and Seismic Phenomena and Climate," in which the position taken up by him in his former paper was much strengthened. In it he argues for two weather cycles, as well as earthquake and volcanic cycles, a short cycle of 11 years and a long one of 35 years. This paper is in course of publication. In November, 1904, Mr. Jensen also read before the Linnean Society of New South Wales a second paper entitled "Contribution to a Knowledge of Australian Foraminifera. Part i.," which will appear in the forthcoming Part 4 of the Proceedings for 1904.

Mr. Jensen has always taken an active part in the debates at the University Union, and has proved himself an active and enthusiastic member of the Naturalists' Club and of the University Science Society. It is confidently expected that he will have a brilliant career as a scientific worker.

I may also add that Mr. Jensen proposes to begin his important work by devoting his attention to the study of the natural history of the volcanic rocks, and particularly of the trachytes of Eastern Australia, and cognate matters. On your behalf and in the name of the Society I have very great pleasure in cordially wishing Mr. Jensen a most successful career.

The University of Melbourne has furnished the Society with a copy of the Regulations for the Research Prize recently

* Proceedings, xxviii. p.842.

endowed by Mr. David Syme, of Melbourne; with a request that publicity may be given to the project, as the Prize will be open to all persons resident in Australia during five of the preceding seven years, whether Members of the Melbourne University or not, with the exception of Professors and Heads of Government Departments. The Prize will be known us the "David Syme Research Prize"; it will consist of a medal and of the sum of one hundred pounds, and it will be offered for the first time in March, 1906, and annually thereafter. It will be awarded to the Candidate who, in the opinion of the Examiners, shall submit the best Thesis based upon original work in Biology, Chemistry, Geology, or Natural Philosophy, preference being given to original research connected with the material and industrial development of Australia, other things being equal. The endowment of the prize is provided for by Mr. Syme's munificent gift of the sum of £3000 to the University of Melbourne. It will be the most valuable prize of the kind available in Australia, and should afford a very desirable stimulus to the prosecution of original investigations in this part of the world.

One of the drawbacks of Australia's geographical isolation is a tendency in some directions to lag behind in the race of progress through lack of knowledge of what is transpiring or has transpired abroad; and so to fail to profit by the experience, or to reach the ideals of older but distant countries. An example seems to be offered just now by the neighbouring State of Queensland. On the plea of economy and the necessity for retrenchment, the Government has taken action with regard to the Queensland Museum which has not only resulted in a shrinkage of its resources, but which may also bring about the compulsory retirement of the Curator, Mr. C. W. De Vis, who has been so long and so creditably connected with it. The welfare of the Queensland Museum is thus menaced, and in times which are critical for the well-being of the fauna and flora. Such a policy is in reality a retrograde step, opposed to the principles and practice of what is known as the modern museum idea. The legislators of Queensland have felt called upon to adopt this policy

of retrenchment under a stress of circumstances which is known to have been severe; and their action, so far as the Museum is concerned, thus calls merely for criticism which is dispassionate and not wholly unsympathetic. But the point which arrests attention is that this action seems to have been taken from a standpoint which has advanced little beyond the ancient idea that a Museum is only a glorified sort of curiosity shop. Another important matter also seems not to have been realised, namely, that the arrested development of the Queensland Museum would mean a standing invitation to foreign Museums to send their representatives or to subsidise local agents, to obtain specimens and collections, since a paralysed local Museum would be unable to accumulate satisfactory duplicate stores for exchange purposes.

To use the words of the late Dr. Brown Goode,* a public museum is not only "an institution for the preservation of those works which best illustrate the phenomena of nature and the works of man, and the utilization of these for the increase of knowledge and for the culture and enlightenment of the people." It is also a bureau of information "to aid the occasional inquirer, be he a labouring man, schoolboy, journalist, public speaker or savant, to obtain, without cost, exact information upon any subject related to the specialties of the institution" (*op. cit.* pp.196, 200).

Queensland has not yet taken upon herself the financial and other responsibilities of a University. Her present educational agencies, therefore, do not occupy the entire field so completely that she can afford to cripple the usefulness and arrest the development even of one of them—and that the only one of its its kind. One properly manned, equipped and maintained public Museum—one bureau of information of an altogether special character—is certainly not an extravagant provision for a State

* Late Assistant Secretary of the Smithsonian Institution, in charge of the United States National Museum, and an acknowledged authority on all matters relating to Museums. The Smithsonian Institution has issued a Memorial Volume, comprising the record of a Memorial Meeting of scientific men, together with a selection of Goode's papers on Museums, and on the history of science in America; which is of the greatest value to all interested in Museums. (Annual Report of the Board of Regents for the year ending June, 1897: Report of the U. S. National Museum. Part ii.).

with a population of over half a million; and having the examples and standards set by the other Australian States to follow.

The Aborigines are becoming sophisticated, and are steadily losing ground. Droughts, bush fires, and civilisation with its concomitants are bringing about profound changes in a flora and fauna of which portions are of tropical richness and exceptional interest. What prospect is there of rescuing anything considerable from the general wreckage, in the absence of an adequate Museum staff, alert and vigilant, and ready to enlist all available enthusiasts as allies? If the only public Museum of a State misses, by neglect, the opportunity of being the best and most satisfactory exponent extant of the natural and other productions of that particular State, which come within its scope, then the Museum as well as the State must be regarded as being in rather a serious condition. Brown Goode, indeed, asserts that museums provide the test of the status of civilised communities. He says:—"The degree of civilisation to which any nation, city, or province has attained is best shown by the character of its public museums and the liberality with which they are maintained" (*op. cit.* p.240).

It is earnestly to be hoped, therefore, that the efforts of the scientific men of Brisbane to secure the co-operation of enlightened men in Queensland and in the other States, and, thus reinforced, to memorialise the Premier of Queensland upon the subject of Mr. De Vis' retention in office may be successful. Also that the Government may be led to realise that any action which results in starving the State Museum and cramping its usefulness is the poorest sort of economy, since it is discounting the future upon terms which cannot but prove to be ruinous, from the scientific standpoint. Mr. De Vis' knowledge of the natural history of Queensland, and his unrivalled experience are of so special a character that they recommend him to the most favourable consideration when the question of retirement at the statutory age of 60 presents itself. Scientific men are not very numerous in a young State, and therefore they need to be encouraged and not lightly to be put aside.

In response to a request from the Consul for Denmark, who has been moved to take action under instructions from the

Danish Government, on behalf of the Danish Committee, I have much pleasure in directing your attention to, and in bespeaking your sympathy with a movement to perpetuate the memory and continue the work begun by the late Professor Niels R. Finsen, of Copenhagen, which is rapidly becoming world-wide in character. In a matter of this kind science has no international frontiers. A most influential Central Committee of over 1400 is organising the movement; and Sub-Committees have been formed in England and other European countries, and in the United States. In this way it is hoped that a fund may be raised for the endowment of the Finsens (Light) Institute at Copenhagen. Finsen is Denmark's contribution to the ranks of benefactors of the human race, like Jenner and Lister, Pasteur, Koch and many others—men whose nationality becomes merged in a universal citizenship accorded by humanity at large.

Prof. Finsen died at Copenhagen on September 24th, 1904, at the early age of 43. Soon after his appointment as lecturer on anatomy at the University of Copenhagen he began to investigate the influence of light on living organisms. In 1893 he developed his treatment of small-pox by red light, based upon the realisation of the fact that inflammation and the danger of scars can be prevented if the small-pox patient is shielded from the blue, violet and ultra-violet rays, since it is exposure to these which causes irritation of the skin and favours the growth of certain undesirable microbes. Then followed his able investigation of the bactericidal power of the ultra-violet rays, which in 1895 resulted in the application of the resulting knowledge to the successful treatment of lupus patients.

The therapeutic possibilities of the light treatment are very far from exhausted. Already there are between twenty and thirty special light institutions in different parts of Europe, and as far as possible the method of treatment has been adopted in hospitals generally where necessary.

Finsen was a man of noble qualities, of single and unselfish aims, and of high scientific attainments, who was esteemed and beloved by all who had to do with him. His scientific work was

possible only as an heroic struggle against ill-health and at the cost of the greatest self-denial and care.

Further particulars of the movement will be found in recent issues of the British Medical and other journals; and the Consul for Denmark will be glad to afford information and his co-operation.

The subject of the erection of a statue, as a permanent memorial of Sir Joseph Banks, has been warmly discussed in the columns of the newspapers during the last few months. It has also been brought under the notice of the Society by the promoter. Sir Joseph Banks' claims upon the gratitude of posterity appeal to most sections of the community—among others to scientific men, who are thus interested in the subject of the proposed memorial.

The correspondence in the newspapers unmistakably revealed some lack of exact knowledge respecting Sir Joseph Banks on the part of some of the writers who took part in it. This point is not without interest because it indicates how large a share an actual want of authentic information—which, so far as Australia is concerned, is more or less pardonable—has had to do with the Empire's delayed appreciation of one of its great men.

It is well-known that the younger Linnæus instituted the genus *Banksia* for the reception of the native honeysuckles which first came under the notice of Banks and Solander at Botany Bay and elsewhere, during the voyage of the Endeavour. Perhaps it is not so well known how Linnæus himself desired to see the term applied. Writing to his friend, John Ellis, of London, in 1771, he said:—"I beseech you, by your warm regard for me, and your sense of what is just and fair, to persuade Solander to send me some specimens of plants from *Banksia* or *Terra australis*, that I may have some idea of the vegetable productions of that unknown region. . . . The newly found country ought to be named Banksia, from its discoverer, as America was from Americus."*

* A Selection of the Correspondence of Linnæus and other Naturalists from the Original Manuscripts. By Sir James Edward Smith, M.D., F R.S., President of the Linnean Society. Vol. ii. pp. 273, 275 (1821).

The adoption of a proposal so one-sided would certainly have been somewhat unfair to Captain Cook. Scarcely more so, however, than the position which Sir Walter Besant takes up in his very interesting sketch 'Captain Cook' (English Men of Action Series, 1894). After enumerating the scanty honours, according with the fashion of the time, that were paid to the great navigator, he goes on to say :—"The immeasurable importance of the gifts which Cook had bestowed upon his country was such as to require the prophetic gift—the supreme wisdom—to recognise it; and surely there was little of that wisdom in the statesmen of 1770. He had given to his country Australia and New Zealand —nothing less; he had given to Great Britain Greater Britain."

It is no detraction from the merits of the justly celebrated Cook to say that this proposition also is one-sided and somewhat unfair to Banks. The fundamental fact in the history of Australia as an integral part of the British Empire is—Cook *and* Banks, each being the complement of the other : not Cook *or* Banks, as if they had been rivals and there were room for instituting invidious comparisons between them. Cook's discoveries made Greater Britain possible; but Banks was the antidote to the unwisdom of the statesmen of the period; and his influence more than that of any one else was instrumental in converting possibility into actuality. It is no depreciation of Sir Joseph's merits, that even his influence, great and far-reaching as it was, needed to be fortified by a national stress of circumstances resulting from the necessity of finding a fresh outlet for the criminal population, before the inertia of the official mind could be wholly overcome.

Cook's share in the series of historic transactions has not been allowed to go altogether unappreciated; because it has been recorded pretty fully and is well-known. The publication of the 'Voyages,' of Kippis' 'Life,' of Besant's 'Captain Cook,' of Admiral Wharton's 'Cook's Journal,' of the 'Official History of New South Wales,' and especially of the first volume of the 'Historical Records of New South Wales,' has made known to the world almost all there is to be known.

On the other hand, Banks' share has been almost unappreciated until within the last decade. As far as Australia is concerned the apparent neglect is pardonable since it is attributable to national ignorance arising from the want of published information. In the preface to 'Banks' Journal,' Sir Joseph Hooker points out that no adequate 'Life' has yet appeared, even though several abortive attempts to accomplish it have been made. Sir Joseph Banks was President of the Royal Society for forty-one years. Nevertheless Sir Joseph Hooker says: "Great as his services to science are known to have been, these will never be fully realised till his correspondence in the British Museum and elsewhere shall have been thoroughly searched."

But the tide has already turned. Among the important factors in producing this desirable reaction have been the publication of Sir Joseph Hooker's 'Banks' Journal' (1896), and of two Parts of the long delayed 'Illustrations of the Botany of Cook's Voyage in the Endeavour' (Australian Plants, Parts i.-ii.), recently issued by the British Museum. But above all, admirers of Banks are most indebted to the Government of New South Wales, firstly, for not missing the opportunity of purchasing the 'Brabourne Papers,' now known as the 'Banks Papers,' when the opportunity offered; and secondly, for the commencement of an 'Official History,' but especially for the publication of the 'Official Records.' Seven volumes, covering the period 1770 to 1811, have been published. But Sir Joseph lived until the year 1820, so that we are still in the dark about his connection with Australian affairs during the interval indicated.

The 'Records,' however, are for the historian, the specialist and the student rather than for the general reader. One of the first to recognise both the importance of the 'Records' and the drawbacks from the general reader's standpoint was the late Professor Morris, who by his lectures, and also by a projected work entitled 'Cook and his Companions,' sought to make known Australia's obligations to Sir Joseph, and to arouse a healthy public spirit in this connection. The contemplated book was not quite ready for the press at the time of Prof. Morris' death in England; but his literary executors have the matter of its publication in hand,

and it is hoped that the work will be ready before very long. Such a book is eminently calculated to foster the enlightenment of a much larger circle of readers than that to which the 'Records' can be expected to appeal.

Whether matters are sufficiently advanced at the present time for the successful inauguration of a movement to commemorate Sir Joseph Banks' eminent services to the nation, is a question not to be settled definitely off-hand. Such a movement would need to be in influential hands, to be initiated at an appropriate time, and to be organised on a very broad basis. Sir Joseph's interest in Australia was many-sided; and an appropriate memorial, on anything higher than a provincial scale, is a question which concerns not only New South Wales as the Mother-State, but the entire Commonwealth. New Zealand may even claim a sentimental interest at least in such a movement. The erection of a statue in Sydney, as a subordinate feature in such a movement, would be an admirable idea as far as it goes. Those who bring a wide outlook to the consideration of the subject, will perhaps decide that whatever else the 'Historical Records' may be, they certainly promise to be a splendid tribute to the memory of Sir Joseph and of greater import than a statue alone. Ministries rise and fall, Colonial Governors and Officials come and go, but Sir Joseph Banks, the Patron of Australia in the best sense of the term, still remains a central figure of interest throughout the series of volumes so far published. From first to last the State has legitimately expended a large sum of money on the production of the 'Records'; and when circumstances permit, it is to be hoped that the publication will be resumed and continued. In the meantime the Government of the State deserves great credit and appreciation for its enterprise in taking the lead in publishing historical matters of vital interest, previously inaccessible and unknown except to officials and to those who could obtain access to the English State archives or to private sources of information.

Before concluding my remarks, I should like to take upon myself the responsibility of offering the Society's hearty con-

gratulations to Dr. Woolnough and Mr. Goddard, both of the Sydney University, upon their return from Fiji, bringing with them data and collections bearing upon the question of the geological history and former geographical relations of the island, which promise to be of very great interest and value. Members will remember Dr. Woolnough's visit to Fiji in 1901, and his conclusions as to its continental origin, embodied in his important paper published in the Society's Proceedings for 1903. On that visit Dr. Woolnough was single-handed. During his second visit he has had the advantage of a colleague, Mr. E. J. Goddard, B.A. The interval since their return has been too brief to allow of my offering you a more detailed account of the work of the expedition than has been made public already. By way of the Rewa and Wainimala Rivers, and a cross-country track, the party reached Narokorokoyawa, which they made their headquarters. Thence excursions were made in as many directions as possible. Notwithstanding unavoidable delays from hurricanes and floods, important observations and extensive collections were made. It will be some time before the complete results—biological, geographical, and geological—are available; but these may confidently be expected to yield substantial gains to science. As Mr. Goddard reports that an interloper, in the shape of the mongoose, is ravaging the terrestrial vertebrate fauna, a visit from an expedition interested in the land fauna of Fiji seems to have been very seasonable.

I have to acknowledge the Secretary's ready assistance in my endeavour to put before you an adequate summary of the Society's affairs during the past eventful year.

Dr. Greig Smith, Macleay Bacteriologist to the Society, gave a lecture entitled "Our First Line of Defence against Microbic Attacks," illustrated with lantern views. After describing the means of protection which the organism has at its disposal for the destruction and especially the solution of microbes, such as phagocytosis and bacteriolysis, the lecturer explained the nature